



Kentucky Energy and Environment Cabinet
Kentucky Division for Air Quality

Appendix L.12

BART Determination Modeling

Results for BART-Subject

Sources

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Table 9-1 Kentucky BART Determination Modeling Results for BART-Subject Sources*

Source	Class I Areas	BART Controls to Be Installed*	98 th Percentile Impact Before BART Controls (Change in dv)	98 th Percentile Impact with BART Controls (Change in dv)	BART Determination Control Visibility Improvement From 98 th Percentile value (Change in dv)
East Kentucky Power Cooperative (EKPC) Spurlock Station	Mammoth Cave (251 km)	EKPC per a consent decree and for BART will install a wet FGD and wet ESP at EKPC Spurlock Units 1 and 2 that will address condensible particulate emissions and other visibility impairing pollutants.	1.834	0.213	1.621
East Kentucky Power Cooperative (EKPC) Cooper Station	Mammoth Cave (130) km	EKPC per a consent decree and for BART will install a wet FGD and wet ESP at EKPC	7.376	0.252	7.124
	Great Smoky Mountains National Park (162 km)	Cooper Units 1 and 2 that will address condensible particulate emissions and other visibility impairing pollutants.	6.763	0.219	6.544
	Joyce Kilmer-Slickrock Wilderness (178 km)		4.974	0.122	4.852
	Cohutta Wilderness Area (221 km)		3.363	0.087	3.276
	Shinning Rock (233 km)		2.022	0.049	1.973
	Linville Gorge Wilderness Area (267 km)		1.885	0.046	1.839
TVA Paradise Fossil Steam Plant**	Mammoth Cave (63 km)	**Although not for BART, TVA previously indicated to KYDAQ its plans to install hydrated lime injection controls on TVA Paradise Units 1-3 to mitigate opacity due to SO ₃ emissions.	U1- 1.285 U2- 1.285 U3- <u>1.842</u> 4.412 3.930	0.606 0.606 <u>0.836</u> 2.048 2.048	0.679 0.679 <u>1.006</u> 2.364 1.882
	Mingo (283 km)		U1- 0.251 U2- 0.251 U3- <u>0.381</u> 0.883 0.865	0.116 0.116 <u>0.166</u> 0.398 0.398	0.135 0.135 <u>0.215</u> 0.485 0.467

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American Electric Power Big Sandy Plant (AEP)	Dolly Sods (291 km)	Per a consent decree and BART, AEP will install ammonia injection on Unit 1 and a FGD scrubber on Unit 2 to address condensable particulate emissions and other visibility impairing pollutants.	1.027	0.496	0.531
	James River Face (279 km)		1.052	0.457	0.595
	Linville Gorge (256 km)		0.835	0.364	0.471
	Otter Creek (266 km)		1.285	0.558	0.697
E.ON U.S Mill*** Creek Station	Mammoth Cave (90 km)	***E.ON U.S. for BART will install sorbent injection controls on the larger Units 3-4 to mitigate condensable particulate emissions.	2.265	1.440	0.825

*Existing and expected EGU controls and EPA web links to EKPC and AEP consent decrees are available in Appendix L.8. **Since TVA had previously indicated to the KYDAQ its plans to install hydrated lime injection controls on TVA Paradise Units 1-3 to mitigate opacity due to SO₃ emissions and that additional controls are not cost-effective at this time, the KYDAQ has determined BART to be no control for TVA Paradise Units 1-3. ***Given the extra cost for the lesser additional dv improvement for Units 1 and 2, the Cabinet agreed that BART for Mill Creek is the installation of sorbent injection controls on the larger Units 3 and 4.

Table 9-2 Kentucky BART Controls, Emission Limits, and Compliance Timeframes for BART-Subject Sources

Kentucky BART Subject Source	BART Controls To Be Installed	BART Emission Limits	Inclusion in Title V Permit	Timeframe for Compliance with BART Emission Limits\Controls
East Kentucky Power Cooperative (EKPC) Spurlock Units 1 and 2 and Cooper Units 1 and 2	Install wet FGD and wet ESP on Spurlock Units 1 and 2 and Cooper Units 1 and 2.	A 07/02/07 EKPC consent decree provides a filterable PM emission rate of 0.030 lb/MMBTU, which was utilized to demonstrate modeled visibility improvement.	Emission limits and controls will be included in the source's Title V Permit as appropriate or on renewal.	Expedientiously as practicable, but no later than 5 years after EPA approves Kentucky's Regional Haze SIP.
AEP Big Sandy Unit 1 Unit 2	Install ammonia injection controls on Unit 1 and a FGD on Unit 2.	Inorganic Condensible Particulate Limits (modeled as sulfates): 101.0 lb/hr (H ₂ SO ₄) 127.0 lb/hr (H ₂ SO ₄)	Emission limits and controls will be included in the source's Title V Permit as appropriate or on renewal.	Expedientiously as practicable, but no later than 5 years after EPA approves Kentucky's Regional Haze SIP. KYDAQ will work with AEP to install the FGD scrubber on AEP Big Sandy Unit 2 as expeditiously as practicable.
TVA Paradise* Unit 1 Unit 2 Unit 3	*Although not for BART, TVA previously indicated to KYDAQ its plans to install hydrated lime injection controls on TVA Paradise Units 1-3 to mitigate opacity due to SO ₃ emissions.	*NA	*Although not for BART, TVA has indicated that its planned SO ₃ controls for Paradise Units 1-3 will be included in its Title V Permit as appropriate or on renewal.	*Although not for BART, TVA in its BART Determination has indicated the SO ₃ controls will be in place on Paradise Units 1-3 well before BART controls are required. Specifically, TVA has related to

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Kentucky BART Subject Source	BART Controls To Be Installed	BART Emission Limits	Inclusion in Title V Permit	Timeframe for Compliance with BART Emission Limits/Controls
				KYDAQ its proposed plan to have hydrated lime injection controls operating on all three TVA Paradise units possibly by the fall of 2010.
E.ON U.S. ** Mill Creek Unit 3 Unit 4	**Install sorbent injection controls on larger Units 3 and 4 to control SO ₃ emissions and continue to utilize existing ESPs to control PM emissions for Units 1 through 4.	Inorganic Condensible Particulate Limits (modeled as sulfates): 64.3 lb/hr (H ₂ SO ₄) 76.5 lb/hr (H ₂ SO ₄)	**Emission limits and controls will be included in the source's Title V Permit as appropriate or on renewal.	**Expediently as practicable, but no later than 5 years after EPA approves Kentucky's Regional Haze SIP.

*Since TVA had previously indicated to the KYDAQ its plans to install hydrated lime injection controls on TVA Paradise Units 1-3 to mitigate opacity due to SO₃ emissions and that additional controls are not cost-effective at this time, the KYDAQ has determined BART to be no control for TVA Paradise Units 1-3. **Given the extra cost for the lesser additional dv improvement for Units 1 and 2, the Cabinet agreed that BART for Mill Creek is the installation of sorbent injection controls on the larger Units 3 and 4.